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THE IDENTIFICATION OF BASIC PROBLEMS FOUND IN THE BASSOON

PARTS OF A SELECTED GROUP OF BAND COMPOSITIONS

by

J. Wayne Johnson

A thesis submitted in partial fulfillment  
of the requirements for the degree

of

MASTER OF SCIENCE

in

Music Education

UTAH STATE UNIVERSITY  
Logan, Utah

1966

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## INTRODUCTION

Since the early sixteenth century, the bassoon has played a role of varying importance in musical organizations. Early groups used as many as twenty-four bassoons in conjunction with other instruments. Today, it is common to have no more than two or three bassoons in bands and orchestras because other instruments, as they developed, have replaced the bassoon in the instrumentation of such groups. Although the bassoon is not as important numerically as it formerly was, its place in musical organizations is assured because it has expressive colors and tonal qualities which cannot be duplicated by any other instrument. The bassoon is especially important as a bass instrument in small ensembles.

Teachers have indicated a desire for help in learning to play the bassoon so that they could be more effective in their instructional procedures. Usually, professional bassoonists are to be found only in larger metropolitan areas, conservatories, and universities. This condition limits the opportunity for players of the bassoon to receive specialized instruction. Even though the interpretation and development of musicianship can be dealt with by a conductor, there are problems which arise in teaching or playing the bassoon which require special knowledge of its playing characteristics. It is the opinion of the writer that the identification of some problems found in bassoon parts of representative band literature might help the teacher or student to determine more specifically what skills should be developed for the satisfactory performance of music in each grade.

To identify the problems a bassoon player will encounter, an examination of bassoon parts from selected, graded band literature will be made. The examination will focus on the following specific problems of performance:

1. Range. Does the range increase gradually through the successive grades of band music?
2. Intonation. What intonation problems are evident? Does the music require the student to play in tonal areas where basic intonation problems exist?
3. Key signatures and related fingerings. Are note combinations used which require special fingerings to facilitate a smooth mechanical change from one fingering pattern to another?
4. Rhythm-rest patterns. What are the most difficult rhythm-rest patterns in each grade of music?
5. Terms and symbols. What musical terms and symbols are used to denote style, mood, dynamics, or other factors of interpretation?

With the above objectives used as a guide, the examination of the bassoon parts of a representative group of compositions for band will be made. A list of the problems found in each grade of music will be assembled as the music is studied and a comparison of the problems in each grade of music will be formulated.

The music used in the investigation will be from Basic Band Library, a graded list of instructional and program music compiled by Dr. Max F. Dalby, Head, Department of Music, and Director of Bands, Utah State University, Logan, Utah.

## A BRIEF HISTORY OF THE BASSOON

The origin of the bassoon has not been determined with any degree of certainty. References to early instruments, however, indicate that it probably evolved from more ancient instruments in the middle of the sixteenth century.

W. H. Heckel, German bassoon maker, in his book The Bassoon,<sup>1</sup> indicated that the bassoon is believed to have been developed from two ancient instruments--the pommer, contributing the pitch and range, and the dulcian, contributing the "U" shaped bend and the conical tube. The pommer was constructed from an eight foot tube, straight with nine holes, two of which were reached by keys. The dulcian, or fagotten, was made by drilling two conoidal bores in a solid wood block of elliptical cross section. At the bottom of the bores there was an opening between the two which provided a continuous bore in a "U" shape when the lower end of the block was covered.

Curt Sachs<sup>2</sup> describes the bassoon as a slightly conical double-reed instrument, the tube of which is bent back on itself like a hair-pin, first descending and then ascending. A brass crook containing the reed projects at right angles from the upper end of the tube.

This "U" turn in the tubing gives the bassoon a characteristic shape which is peculiar among the modern woodwind instruments. Other

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<sup>1</sup>W. H. Heckel, Der Fagott (Beibrich a. Rhein, 1899). Enlarged edition Leipzig, 1931. Revised by D. Waples, Chicago, Ill.: Univ. of Chicago Press, 1941), p. 13.

<sup>2</sup>Curt Sachs, The History of Musical Instruments (New York: Norton & Co., Inc., 1940), p. 317.

woodwinds, which in general, are constructed on the basis of a straight tube, play the upper tones with the left hand and the lower with the right. The bassoon, being doubled against itself, places the section which produces the upper tones and the section which produces the lower tones together in the left hand. The right hand controls the tones of the middle register and by using cross-fingerings helps to bring some of the upper tones into improved pitch alignment.

Since the bassoon has had a different name in each different language, some of the most common should be mentioned as a help in understanding the references of the various historians cited. The Italian fagotto<sup>3</sup> or "fagot" was translated into German as fagott; the Italian bassone or "big bass" led to English bassoon and Spanish bajon. Praetorius mentioned that the English called the tenor bassoon a singel corthol, and the ordinary bassoon a doppel corthol. In usual spelling this is the English word "curtall" which derives from the low German kortholt or "short wood" and signifies an instrument shortened because of its folded tube. A last family of names comprised such terms as dolcian, doucine, dulzian. This name could be used to describe any soft-voiced, double-reed instrument. In London a bassoon was produced which was called the tenoroon, a name indicating the importance of its upper octave. The word "bassoon" first occurred in an English dictionary of 1706 and is derived from the French bassoon.<sup>4</sup>

The earliest mention of the bassoon is given by Grove<sup>5</sup> in which

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<sup>3</sup>Sachs, op cit., p. 317.

<sup>4</sup>Grove's Dictionary of Music and Musicians (New York: St. Martin's Press, 1955), p. 488.

<sup>5</sup>Ibid.

an account of a letter written by Tesco Albenesi in 1539 gives two illustrations and an account of an instrument called the phatorium, the invention of which he ascribed to his uncle, Canon Afranio of Ferrara.

Sachs<sup>6</sup> indicates that the earliest reliable reference to the bassoon is in a private English collection dating to 1574, where it is called a curtal. He and Heckel<sup>7</sup> mention Siegmund Schnitzer, one of the earliest bassoon makers, who died in Nurnberg in 1578. His instruments were widely sold in Germany. This would indicate that his instruments were produced before 1578, possibly as early as the middle of the sixteenth century.

The monk theorist, Zaccooni,<sup>8</sup> in 1592 mentions two bassoons--the fagotti chorista, with a range of C to b, and the smaller dolciane with a range from c to d'. Rather than mention just two instruments of this type, Praetorius<sup>9</sup> in 1618 lists a family of them. The smaller ones were not too valuable but the bass of the group was in demand. Bessaraboff<sup>10</sup> indicated the range of the doppel-fagott as being from FF to g, and classified it as a sub-bass. The smallest, called a discant fagott, was classified as a soprano instrument with a range of a to c".

Hans Schreiber, musician to the electoral court in Berlin, was in

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<sup>6</sup>Sachs, op cit., p. 315.

<sup>7</sup>Heckel, op cit., p. 16.

<sup>8</sup>Nicholas Bessaraboff, Ancient European Musical Instruments (Cambridge, Mass.: Harvard University Press, 1941), p. 125.

<sup>9</sup>Martin Cooper, The Concise Encyclopedia of Music and Musicians (New York: Hawthorne Books, Inc., 1958), p. 30.

<sup>10</sup>Bessaraboff, op cit., p 126.

1618 constructing a fagotconta with CC its lowest tone.<sup>11</sup> This was the earliest double bassoon. The Concise Encyclopedia<sup>12</sup> gave the account of an English maker, Stanesby, who built the first true double bassoon to survive in 1739.

Bessaraboff<sup>13</sup> continued the development of the bassoon indicating that the writer Mersenne in 1636 described the instrument as having two keys as had most of the instruments up to that time. When Cambert produced his opera "Pomone" in 1671, the compass was extended to BB-flat and a key to control this tone was added. Matheson in 1713 stated that some instruments even descended to AA. A fourth key, the G-sharp, was added sometime in the early 1700's. The Brussels collection contains a bassoon (no. 997) made by G. deBrujn in 1730 which has a key to control G-sharp. The low E-flat was the fifth key to be added.

Information concerning the actual development of the bassoon during the 1700's is rather meager. Several references to its use in musical literature indicate its acceptance into the orchestra by composers and refer to its development.

During this period there was some development and experimentation as indicated by the instruments of the Mason collection at the Museum of Fine Arts in Boston. A photograph in Ancient European Musical Instruments<sup>14</sup> shows six bassoons, four of which were made in the 1700's. The smallest bassoon of the group is called a fagottino and has an air column 124.5

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<sup>11</sup>Sachs, op cit., p. 317.

<sup>12</sup>Martin Cooper, op cit., p. 32.

<sup>13</sup>Bessaraboff, op cit., p. 128.

<sup>14</sup>Ibid., p. 132.

cm. long. It was built in the early part of the century. The tenoroon, built in the middle of the century, has an air column 167.7 cm. in length which produces an E-flat as the lowest tone, compared to E-flat, a fifth above, for the fagottino. Two larger instruments built in the latter part of the century completed the group. These have air columns of 248 and 237 cm., respectively. The first has a BB-flat as its lowest note and was made by Milhouse in Newark, England. The latter instrument, cut shorter to raise the pitch from what it originally was, had nine keys. The workmanship showed that four of these keys were "home-made" and added to the original five. The workmanship would indicate that it had been made in France.

Curt Sachs<sup>15</sup> referred to two specific instruments which are smaller than the ordinary bassoon. Heinrich Grenser of Dresden made bassoons in the upper octave about 1810. In 1820, Lazarus in London constructed similar instruments under the name "tenoroon." Being in the upper octave, they were probably similar to the instruments of the Boston collection mentioned above (fagottino and tenoroon).

Grove's Dictionary of Music and Musicians<sup>16</sup> gave other accounts of the development of the bassoon. Carl Almenraeder built a fifteen keyed bassoon in 1817. This was done at Schott's factory at Mainz with the help of Gottfried Weber, a theorist, accoustician, and writer.

In 1831 Almenraeder went into partnership with J. A. Heckel at Bierbrich on the Rhine. A fine German bassoon has been the product of this firm through the ensuing generations.

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<sup>15</sup>Sachs, op cit., p. 317.

<sup>16</sup>Grove, op cit., p. 491.

In 1817, J. F. Simiot used a metal "U" tube at the bottom of the instrument to replace the cork used to give continuity to the bore. He also added a tuning slide to the first joint and a flare to the bell to give added volume of sound.

Almenraeder, in 1841, published an instruction book for the fifteen or sixteen keyed bassoon, which indicated the use of additional keys in comparison to older models.

In France the principal bassoon maker was Savory (junior) who, with others during the second quarter of the nineteenth century, made significant changes in the French bassoon. The bore was narrowed at the top to increase the rate of expansion through the instrument. A pin hole in the mental crook was also introduced which aids in overblowing the upper register. Chromatic keys were added where they had been missing. A characteristic of the French bassoon is the placing of the responsibility for the chromatic tones of the lower register with the left thumb which must control five keys. This feature is still retained.

As the French and German bassoons developed, they did so with characteristics that were perpetuated. The French bassoons were easier to play in the extreme high register but there seemed to be a distinct change in tone quality from register to register. Its tone was described as being more "feminine" than the German bassoon. The German instrument tended to be easier to blow and had a more even quality of tone throughout its register. Although there are recognizable differences, these two instruments may be seen side by side in a modern orchestra.

Jancourt, an outstanding French bassoonist and teacher, published a "Methode" in 1847 in which he described his improvements in the key



mechanism. He had Buffet-Crampon, Goumas, and Triebert build instruments with improvements suggested by him.

Triebert, who had helped to build Jancourt's instruments, in 1855 exhibited in Paris a bassoon to which he attempted to adapt the Boehm system which had worked well on the flute, but it was not successful.

A London bassoon maker (Alfred Morton) fitted an ebonite lining into the wing-joint and narrow tube of the lower section in 1875. In 1889 Heckel took out a German patent for a similar lining. The lining is necessary as a protection against moisture during playing.

Through the developments of the nineteenth century, with the addition of keys to complete the chromatic scale and the extension of the compass to about three and one-half octaves, the bassoon still remains today an instrument in need of refinement. H. W. Schwartz wrote:

Although the bassoon is quite an old instrument, its key mechanism is surprisingly undeveloped. Apparently players will put up with crude clumsy keys on the bassoon which they will not tolerate on other woodwinds. There can hardly be said to be a key system on the bassoon; it is a sort of miscellaneous collection of keys of one kind and another.

Berlioz dropped a hint about the bassoon which unfortunately has not been acted upon. After seeing what the Boehm system had done for the flute and clarinet, and to a lesser degree for the oboe, he wrote that, of all instruments, the bassoon would benefit most by adopting the Boehm ring-key system.<sup>17</sup>

In spite of its size, which makes it difficult to handle, and its poorly developed key system, the bassoon has still been refined to the point that it has earned itself a prominent place in certain instrumental

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<sup>17</sup>Harry Schwartz, The Story of Musical Instruments from Shepherd's Pipe to Symphony (Garden City, N.Y.: Doubleday Doran & Co., 1938) p.108.

groups because of its tone color and versatility.

Schutz, "Father of German Music,"<sup>18</sup> according to Grove<sup>19</sup> first scored for the bassoon two compositions in 1619, three in 1621, and five in 1625. Lully's "Psyche" in 1674 was probably the first opera to include bassoons. Keiser in his "Octavia" written in 1705 has one aria accompanied by five bassoni, another by two, and one by "Bassoni Unisoni"--obbligati in each case.

Schwartz gives credit to Bach for having first used all three double reeds in one composition. In his "Passion Music" written in 1723, he used the oboe, oboe da caccia (English horn), and bassoon. Schwartz continues:

The composers Beethoven and Mendelssohn seemed to understand the bassoon best. This instrument was a favorite with Beethoven, and he wrote some beautiful passages for it. Consciously or unconsciously, though, both of these great composers cast it in roles that ever since it has been known as the "clown" of the orchestra. Beethoven in his "Pastoral" symphony used it to depict the gyrations of an inebriated musician in the village band, and Mendelssohn wrote a march for two bassoons which describes the antics of two clowns.

This is not to imply that the bassoon does not have its serious and impressive moments. When playing music fitted to its nature, it is truly a great and beautiful instrument.<sup>20</sup>

Modern composers have used it for a variety of effects in their music. William Spencer wrote:

No other instrument can depict so well the ethereal, mystic, and haunting melody in the opening measure of Stravinsky's The Rite of Spring, or the plaintive song in the "Berceuse" of his Firebird Suite. While these examples are in the high register, Tschaikowsky chose the middle

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<sup>18</sup>Rupert Hughes, Music Lovers' Encyclopædia (New York: Doubleday, Doran & Co., 1958), p. 397.

<sup>19</sup>Grove, op cit., p. 490.

<sup>20</sup>Schwartz, op cit., p. 98.

register for the solemn statement of the first theme in the first movement of his Symphony No. 5 and the low register for the melancholy and despair of the first movement of Symphony No. 6. Yet another example of the versatility of the bassoon is the role of the gruff Grandfather in Prokofieff's Peter and the Wolf using the blustering, reedy, and rough qualities of which the bassoon is capable in the extreme low register. The sharp brittle staccato sound which is used, for example in the theme of the brooms in Dukas' Sorcerer's Apprentice is well known by anyone who has listened closely to the background music for humorous and grotesque actions in Walt Disney's cartoons.<sup>21</sup>

William Spencer has compiled a comprehensive and graded list of selected solos for, and ensembles including, the bassoon. His selection of compositions includes only those which were written originally for this instrument. A sampling of the composers who wrote for the bassoon in various periods follows:

Baroque:

Bach	Concerto in B Flat
Couperin	Concert (two bassoons)
Bailliard	Sonata I through Sonata VI
Senaille	Allegro Spiritoso
Telemann	Sonata in F Minor
Vivaldi	Sonata in G Minor
Weelkes	A Gay Tune

Classical:

Beethoven	Duet in C Major (with flute)
Cervetto	Sicilienne
Gluck	Gavotte (woodwind trio)
Mozart	First Bassoon Concerto in Bb Major
Rossini	Quartet in F (woodwind)
Weber	Concerto, Opus 75

Romantic:

Jancourt	Reverie Op. 61
Klughart	Romanze
Prout	Romanze
Shubert	Minuetto from Fantasia, Op. 78
Schumann	Suite
Weinberger	Sonatine

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<sup>21</sup>William Spencer, The Art of Bassoon Playing (Evanston, Ill.: Summy Birchard Co., 1958), p. 44.

## Twentieth Century:

Hindemith	Sonata for Bassoon and Piano
Ibert	Little White Mule
Jacob	Concerto for Bassoon
Piston	Three Pieces
Poulenc	Sonata for Clarinet and Bassoon
Strauss	Duet Concertino for Clarinet, Bassoon, and Strings <sup>22</sup>

## Chronology

- 1539 Afranio of Ferrara, built the phagotum
- 1574 First English curtal was built
- 1578 Death of Seigmund Schnitzer, bassoon maker
- 1592 Zacconi, a writer, mentioned smaller bassoons
- 1618 Praetorius listed a "family" of bassoons  
Hans Schreiber built first contra-bassoon
- 1636 Mersenne, a writer, mentioned a bassoon with two keys
- 1671 Cambert's "Pomone" used a bassoon with a low register extended to BB flat
- 1706 The word "bassoon" first appeared in an English dictionary
- 1713 Matheson, a writer, mentioned extension of the range to AA
- 1730 (ca.) G-sharp and E-flat were added
- 1739 Stanesby, an English maker, built a contra-bassoon
- 1775 (ca.) A nine keyed bassoon was mentioned, built by Millhouse in England
- 1808 Adler, a Frenchman, added the B and C-sharp keys
- 1810 Heinrich Gresner, a German, made small bassoons
- 1820 Lazarus, in London, made a small bassoon called a "tenoroon"
- 1817 Carl Almenraeder built a fifteen keyed bassoon  
J. F. Simiot first used the "U" tube
- 1817 Adler built a fifteen keyed bassoon
- 1831 Heckel and Almenraeder built bassoons at Beibrich

<sup>22</sup>Spencer, op cit., p. 44.

- 1847 Jancourt improved the key mechanism
- 1855 Treibert built a Boehm system bassoon
- 1875 Alfred Morton, an English maker, first lined the wing-joint
- 1899 Heckel used the wing-joint lining in his bassoons
- The chromatic scale key arrangement was completed during  
the 1800's. No exact date was found.

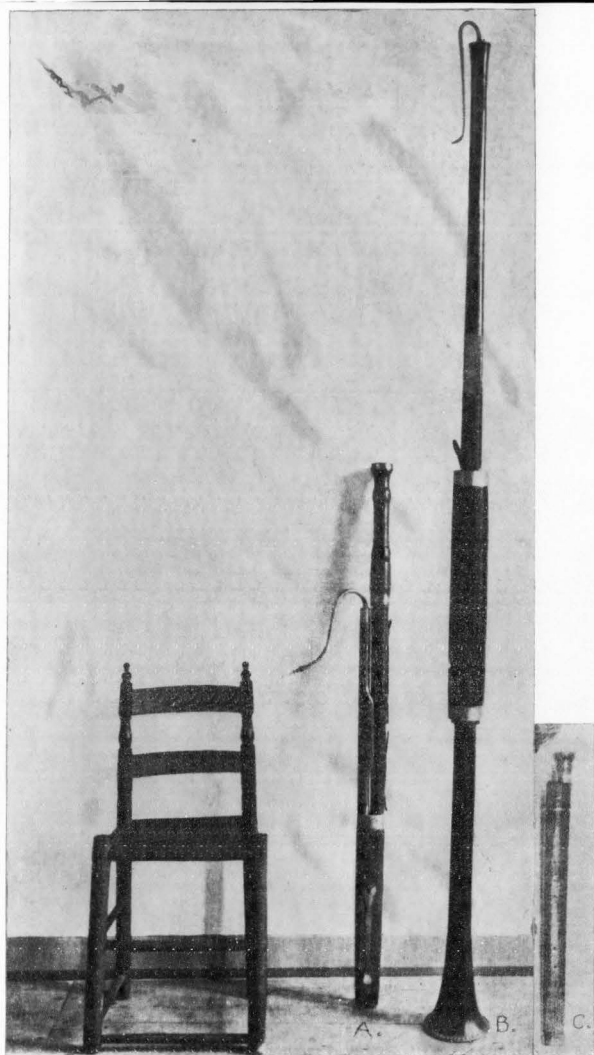


Figure 1. Bassoon, pommer and dulcian

A. Bassoon

B. Pommer

C. Dulcian

According to Heckel, German bassoon maker, the Pommer contributed the pitch and range, the dulcian contributed the "U" shaped bore to the bassoon. (Bassoon and Pommer from Harrison and Rimmer, European Musical Instruments, p. 132; dulcian from Bessaraboff, Ancient European Musical Instruments.)

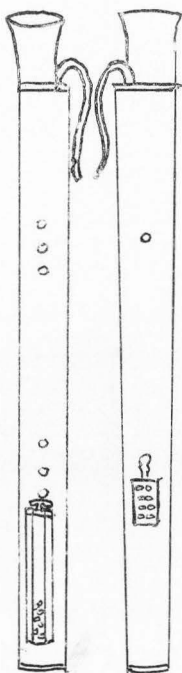


Figure 2. Dulcian (curtal)

A sketch showing the location of the finger holes, thumb holes, and keys.

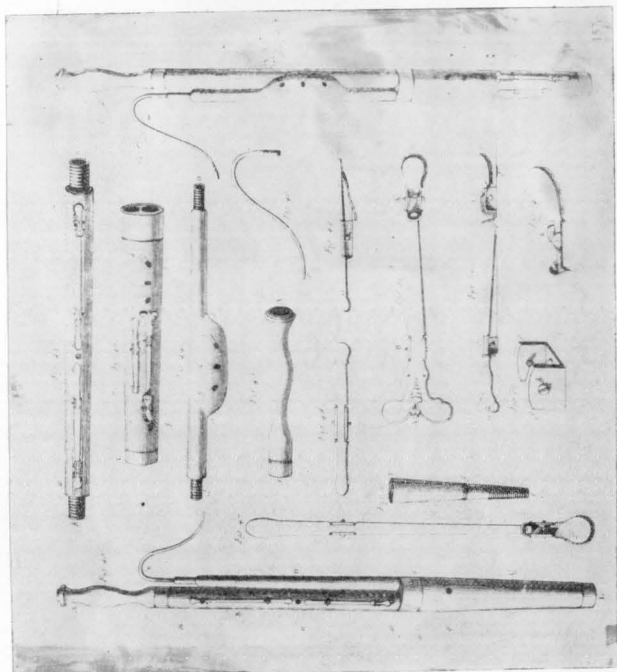


Figure 3. Details of early bassoon

Details of a bassoon, showing both sides of a complete instrument, separate joints with outlines of the diagonally bored finger holes, crook, key-fixing mechanism keys, and reed. The keys and reed are out of scale. (From Harrison and Rimmer, European Musical Instruments, photo No. 157.)



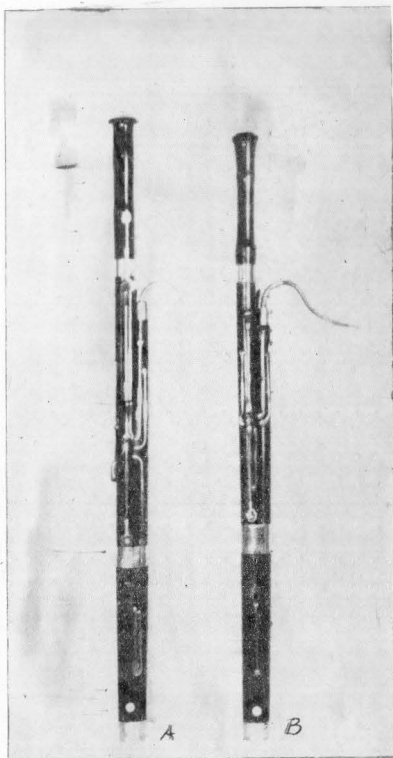


Figure 4. Two early 19th century bassoons

- A. Sixteen-keyed Almanraeder bassoon by Schott, Mainz 1823-31.
- B. Eleven-keyed bassoon by Savary junior, Paris 1829.

There were two different trends in bassoon design beginning in the 1802's. The French retained the colorful character of the 18th century instrument. The German bassoon's design was considerably altered. The use of the German bassoon is widespread except in France, Belgium and Italy. (Picture from Harris and Rimmer, European Musical Instruments, No. 202.)

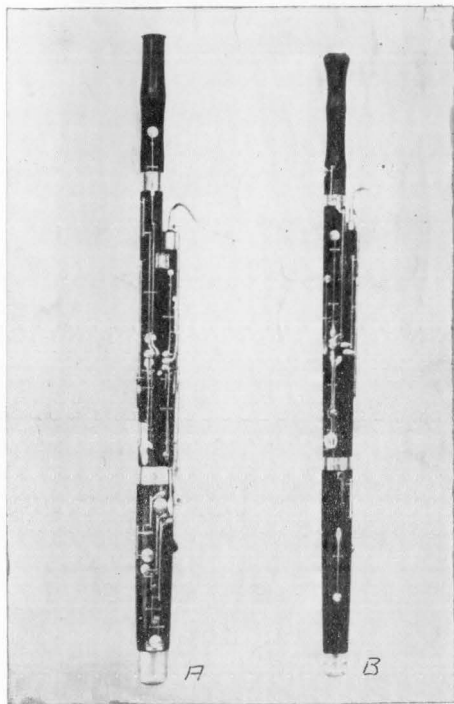


Figure 5. Two modern bassoons

A. German or Heckel system

B. French or Buffet system

(From Harrison-Rimmer, European Musical Instruments,  
Photo No. 222.)

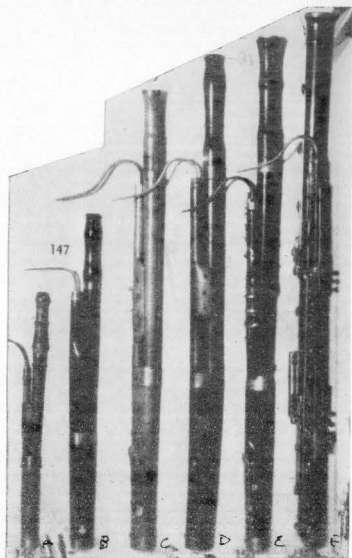


Figure 6. A family of bassoons

These six instruments show some of the variations in bassoon making during the 18th century. Although details are not shown, the comparative sizes are apparent.

A. The fagottino was built in Germany in the early 18th century. The lowest tone is B-flat, one octave above the larger instruments. (Bessaraboff, Plate IV.)

B. This instrument, named a tenoroon, was made in Ireland in the middle of the 18th century. It is built in the key of F and has E-flat as its lowest tone.

C. This larger instrument is a contrabass in the key of C. Its lowest tone is BB-flat. This bassoon was cut down to make it of higher pitch than it originally was. Five keys, showing the work of an amateur, were added to the original five.

D. This is another contrabass in the key of C and has BB-flat as its lowest tone. It is an English bassoon with five keys and was built in Newark by Milhouse.

E. This contrabass in the key of C also has BB-flat as its lowest tone. It is an English bassoon built in the late 19th century and has 17 keys.

F. This bassoon was made in Paris about 1860. The other bassoons shown have six finger holes in the front of the instrument and two thumb holes in back. In contrast, this bassoon has no finger or thumb holes, but has a complicated set of 29 keys. The key system is an attempt to adapt Boehm's flute mechanism to the bassoon.

## THE INSTRUMENT

Testing the bassoon

As with any musical instrument, the general condition of the mechanical features of the bassoon can be of great importance in tone production. Many of the problems of beginning students, and those of students beyond the beginning stage, may be traced directly to the faulty habits learned in the attempt to compensate for a poorly adjusted bassoon. A leaking pad, a bent key, or a slight crack in the wood may be detected only by close examination and careful testing, yet a combination of these defects, or any one of them, could cause problems in the production of certain tones. If a player succeeds in producing a tone in spite of the defect, it is likely to be of poor quality and poor intonation; and the success may indicate that an undesirable habit is in the making. For the benefit of the player, as well as the wisdom of taking care of an expensive instrument, it would be judicious to have the instrument checked by a competent repairman at frequent intervals.

Besides the general overhaul and other repairs which are of such a nature that a professional repairman would be required to do the work, there are certain minor adjustments which might well be made by the bassoon player. Leaks caused by poorly fitted pads, bent keys, or cracked wood, may usually be found by stopping one end of a joint, closing the finger holes and pads, and exerting air pressure into the bore. If there is a leak, it can usually be found by locating the source of the "hissing" sound of the escaping air. Similarly, by holding the joint in the same

manner, a leak may be detected by attempting to create a suction in the joint by sucking air from the bore. If a partial vacuum can be maintained, it is an indication that the joint is in fairly air-tight condition. Because the tenor and bass joints are quite long, it may be necessary to procure help to get the keys closed and the bore stopped at the same time.

Another test to help determine where a pad is not seated properly is made with the use of a feeler gauge. A feeler gauge is made by fastening a small, wedge-shaped piece of cellophane to a match stick which is used as a handle. The cellophane should be approximately one-half inch long and one-sixteenth inch wide at the tip. A piece of tape or string may be used to hold the cellophane to the handle. To test for leaks, the cellophane should be placed under the pad, the pad depressed with normal playing pressure and the cellophane slowly removed. An area which leaks on a pad will allow the cellophane to be removed without feeling drag or friction. A properly seated pad will hold the cellophane quite securely between the pad and the tone-hole. Obviously, the pad would have to be tested around the complete circumference of the pad where it contacts the tone-hole.

Often an effective repair can be made by re-seating the pad in the pad cup so that it forms an air-tight closure with the hole it covers. The cement which holds the pad should be softened by heating the pad cup with an alcohol burner. The pad then should be lifted slightly with tweezers or a needle, then re-seated by pressing the key to its normal closed position while the cement is still soft. The key should be held in position until the cement has had time to harden.

Pads should be checked to determine if they have become hard. A hard pad may have the appearance of being satisfactory but, because it is not soft enough to give an air-tight cover to the hole, should be replaced. A pad may become hard through age, oil absorption, or repeated wetting. Oil may be kept from the pads by placing papers under them during the oiling process. Water which condenses from the breath during use of the instrument may be removed by using a soft cloth or blotter. The bass joint and bell rarely receive any moisture as a result of condensation of breath moisture. The pads most affected by water are those at the bottom of the boot joint where the water collects. The G-sharp key, because of its position on the lower side of the instrument near the end of the boot joint, is especially vulnerable to damage by water. During rest periods the bassoon should be kept at an angle rather than allowed to lie horizontally, thus keeping the water in the bottom of the instrument away from the pads until it can be disassembled and properly dried.

#### Removing moisture

The wool swabs usually furnished with bassoons are not satisfactory for two reasons: First, they tend to spread the water along the bore of the instrument rather than to absorb it; second, they leave lint in the tone holes. A better method of removing water is to use a rod (similar to that used for cleaning guns) with a piece of soft cloth. A strip of cloth should be inserted into the eye and wrapped around the rod before inserting it into the bore. Another cleaning device may be made by tying a triangular-shaped chamois and a small weight to opposite ends of a stout

cord. The weight can be dropped through the bore, pulling the chamois through. The chamois should measure no more than four inches at the widest part. To dry the boot joint, the chamois should be placed over the hole and pushed to the "U" in the bottom with the cleaning rod. It may be removed by pulling on the rod and the cord at the same time. Since moisture does not collect in the bell and at the bass joint, they have only to be dusted occasionally. Water should be blown from the tone holes if any has collected there, and the pads should be dried with a blotter if necessary.

### Oiling

The key mechanism should be oiled once each month to keep it operating properly. A small amount of oil should be placed at the juncture of the key shaft and the post. The proper amount of oil would be that which would adhere to the small end of a toothpick or to a small screwdriver. The application of oil directly from the bottle or from an eye dropper is not recommended because of the possibility of excessive amounts of oil being placed on the mechanism and spreading to the pads, other parts of the instrument, or even to the player's hands and clothing.

The bore of the instrument should be oiled every six months with a special bore oil which can be purchased at a music store. In the Inter-mountain Region, the best time to oil the bore is in the early fall before the onset of cold, moist weather and in the spring before the onset of dry, hot weather. The procedure for oiling is similar to that of cleaning the bassoon with the substitution of a slightly oiled cloth for the chamois.

### Suspending the bassoon

Traditionally, the bassoon has been suspended by a neck strap attached to a ring on the upper end of the boot joint. To play the bassoon while standing, this appears to be the only logical way. In recent years the seat strap has become very popular as a method of suspending the bassoon while the player is seated. In one type of seat strap, the metal cap of the boot joint fits into a leather cup which is attached to a strap which lies across the seat of the chair and is held in place by body weight. In another type, the strap is attached to the bassoon by a metal snap or hook which is placed in a hole drilled in the reenforcement rib on the bottom of the cap. The seat strap, besides taking the weight of the bassoon off the neck, gives better balance of the bassoon for greater playing comfort.

### The reed

Because the reed sets up the vibrations which are amplified by the bassoon, its importance in tone production should be emphasized in the teaching of the young bassoonist. The experienced player will have learned its importance through his acquaintance with reeds of various degrees of acceptability as he has worked with them.

The advanced bassoonist will usually make his own reeds. Although a player may find a source of commercially made reeds which seems to meet his requirements, he will probably also find that each reed has characteristics which he would like to alter to some degree. A knowledge of reed making permits the player to avoid many of the problems which plague the bassoonist who must rely upon a supply of commercially made reeds. The



blades of many commercial reeds are left thick to allow for alterations to meet a particular player's needs and would, therefore, be unsatisfactory without those alterations.

There are several sources of information to guide a bassoonist who is interested in learning to make his own reeds. One of these sources is William Spencer's The Art of Bassoon Playing.<sup>1</sup> This book explains the reed making process in detail as well as discussing other problems of bassoon playing. Joe Artley<sup>2</sup> also gives a complete set of instructions on reed making in his book, How to Make Double Reeds.

The bassoonist who is not interested in learning to make his own reeds should, at least, learn to adjust and test a commercial reed so that it will perform satisfactorily. As the player progresses, reed adjustment becomes increasingly the individual player's task because of the particular reed requirements of each player. The fact that an unsatisfactory reed may be satisfactory after being correctly adjusted makes the effort of reed adjusting very worth while. The satisfaction which comes from playing a well-adjusted reed will give added incentive to the student who learns to evaluate and adjust his own reeds. The teacher must assume this responsibility for the beginner who has no concept of how a reed should function.

Adjusting the reed. Although the making of reeds can become very time-consuming, the adjustment of them can be done without becoming a great burden. Homer Pence<sup>3</sup> gives helpful advice to aid in adjusting

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<sup>1</sup>Spencer, op cit.

<sup>2</sup>Joe Artley, How to Make Double Reeds (Hartford Conn.: Jack Spratt Woodwind Shop, 1940).

<sup>3</sup>Homer Pence, Teacher's Guide to the Bassoon (Elkhart, Ind.: H & A Selmer, Inc., 1963).

the bassoon reed. The drawings below show the areas of the blade referred to in Mr. Pence's instructions.



Figure 7. Areas for reed adjustments

These drawings show the various parts of the reed with normal dimensions.<sup>4</sup>

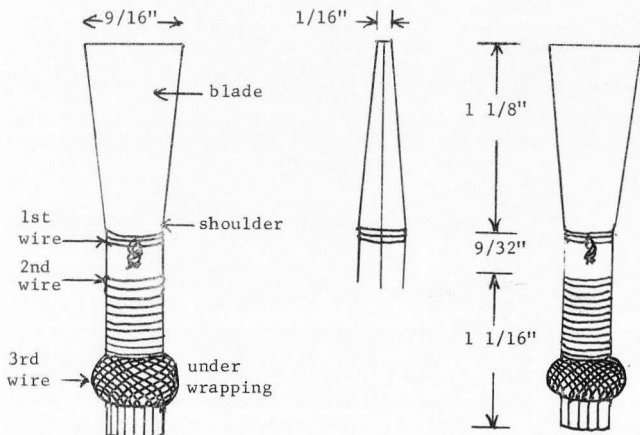


Figure 8. Reed parts and dimensions

<sup>4</sup>Pence, op cit., p. 9.

Reed too sharp in pitch

1. Squeeze wires 1 and 2 slightly from top to bottom.
2. Check the reed for the amount of cane over all and trim accordingly. A thick reed will often result in sharpness.
3. Scrape reed in Area D.
4. In trimming work for a lower pitched "crow." (Work Area D.)<sup>5</sup>

Testing the reed. Testing a reed on the instrument gives the player a chance to evaluate the reed in relation to such factors as ease of response, tone quality, intonation, attack, and flexibility. William Spencer<sup>6</sup> gives some effective but fairly easy tests to check these factors.

To check for response of the reed, one should play scales in the keys of F, G, and C. The scales should be played in both the upper and lower registers, while the player listens for consistency in the tone quality and notes the resistance necessary to produce the tone.

To check for correct strength of the blades one should play third space E and compare this pitch with E an octave below. One should open and close the E key with the right thumb while playing the upper E. If the upper E is flat, it is an indication of a soft reed. If the reed "breaks down" while one is playing a crescendo on this same pitch, that too, is an indication of a soft reed.

A reed that is too stiff has a tendency to play sharp. The player should check by playing E-flat with the first and third fingers. If the pitch is sharp, the reed will have to be thinned slightly. The pitch should be compared with E-flat an octave below, or with E-flat played with the first two fingers and the left thumb. Another check may be made by closing and opening the fourth hole and the B-flat key with the

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<sup>5</sup>Pence, op cit., p. 10.

<sup>6</sup>Spencer, op cit., p. 32.

right thumb while playing E-flat with the first and third finger. A reed that is too stiff will cause flattening of the pitch. D in the middle of the staff and G and A at the top will also be sharp if the reed is too stiff.

The greatest problem in adjusting a reed is that of excessive cutting and scraping. Wood that is removed from a reed cannot be replaced. It is best to make adjustments by cautiously removing a small amount of wood, testing, and if necessary, again removing a small amount of wood and re-testing until the desired response is obtained. It is advisable to space the adjusting over several work periods, allowing the reed time to season.

Care of the reed. Once a bassoonist has obtained a good reed, he will usually guard it carefully. Proper storage between playings is of great importance. The reed should be kept in a case which allows it to air and dry. The plastic or glass vial in which some reeds are sold is unsatisfactory as a reed case because it is air-tight and will allow the reed to mildew. A good reed case will hold the reeds on individual mandrels or wires so that they are not touching each other and is constructed so that air may enter the case and allow the reed to dry. A small box lined with cotton will be satisfactory as a temporary reed case.

As a reed is used, a deposit of scum and food particles will build up on the blades of the reed. This can be cleaned off by running water rapidly through the reed. Rubbing the wet blades with the fingers or using a small brush, stroking toward the tip, will keep the external sides of the reed looking clean. The inside should not be cleaned with any mechanical device which may damage the reed. However, if a heavy coating

builds up inside the reed, it may be removed by inserting a small feather into the tube and pulling it through the tip while water is running through it.

## TONAL PROBLEMS FOUND IN BAND MUSIC

Range and embouchure adjustment

The bassoon, when played with no tone holes covered by the fingers, produces F on the fourth line of the bass staff. This tone is used frequently as the first tone in beginning bassoon methods because it is one of the easiest for a young player to produce. Judging from this fact, it is reasonable to assume that the easiest grade of band music would employ the tones fairly close to this F. The investigation showed, however, that the lowest tone of the bassoon, B-flat below the bass staff, was used by composers or arrangers to make full use of the bass register of the instrument.

Most beginning bassoon players will have little difficulty in producing the tones from F on the fourth line of the bass staff down to F an octave below. The notes below the staff are difficult to play because of the fingering and embouchure adjustments which are necessary. Usually, these low notes are played sharp. As the player extends the range below the staff, care must be taken to insure that the fingers do not allow the air to leak from the tone holes when the thumbs are brought into use. Because of the fairly large size of the bassoon, there is a tendency for the fingers to move slightly away from the tone holes as the thumb is moved from key to key.

Slight adjustments in the embouchure will help in the playing of low tones. The easiest adjustment for low tone production is to take less reed into the mouth. Do not slide the reed on the lip, rather

let it roll the lip slightly forward without greatly changing the basic lip position. At the same time there can be a small reduction in breath pressure and a slight dropping of the lower jaw to decrease the pressure on the reed.

Since grade I music used the lowest note of the bassoon, the lower range cannot be extended in other grades of music. The problems which become apparent are mechanical problems dealing with the selection and manipulation of keys in various fingering combinations.

The range of notes found in band music using the upper register of the bassoon extended from F above the bass staff in grade I and grade II music to C, a fifth higher, in grade V music. In grades III and IV the limit for upper tones was G above the staff.

The problem in playing high notes is the tendency to use too much bite, or jaw pressure, on the reed. To play the notes above the staff correctly, the breath pressure must increase as one ascends the scale; also, the reed may be rolled on the lips slightly more into the mouth. The player should not let the reed slide into the mouth but should attempt to maintain the basic embouchure position, letting the lip move with the reed. In playing a scale passage, the lip movement from note to note would be so small that it would be hardly noticeable. Only in the wide intervals would the movement of the reed and lips be obvious. Basically, then, the player must coordinate increased breath pressure with very slight jaw pressure to play the notes ascending above the staff.

"Bendemeer's Stream,"<sup>1</sup> a grade I selection, contains a chromatic passage which begins on F and ascends to B-flat above the staff. In

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<sup>1</sup>LeRoy Jackson, "Bendemeer's Stream" (New York: Music Publisher's Holding Corp., 1961).

this passage the player must use coordinated lip and breath pressure to correctly play the A and B-flat because the fingerings on these two tones are identical to the fingerings of the tones an octave lower.

In another grade I selection, Metcalf in his Transition Band Book<sup>2</sup> used a skip from F in the staff to F above the staff. Although the fingering for these two tones is different, it is only by the increased breath pressure and embouchure adjustment that the higher tone may be produced.

Music which uses the notes E-flat, E and F (the third register of the bassoon) presents a problem in "cross-fingering"; that is, many of the notes in this register require the use of the fingers in non-consecutive order. The finger combinations may not be especially difficult, but they require more finger coordination than do notes of the other registers, especially when rapid changes to other notes within the register is necessary.

Grade II music does not present new problems so far as the total range used is concerned, but since the music contains more complicated rhythm patterns, a problem of fingering mechanics is presented along with that of basic tone production. The more rapid movement from one note to another allows less time for mental preparation before the fingering change becomes necessary, and this fact is likely to affect the basic tone production.

The range of the music in grades III and IV extended from B-flat below the staff to G above, an increase of one step more than the range

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<sup>2</sup>Leon V. Metcalf, Transition Band Book (Cincinnati, Ohio: Fillmore Music House, 1962).



of the music in grades I and II. Although the increase is not especially significant, the frequency with which the notes above the staff appeared in the music in grades III and IV was noticeable. In all grades, most of the music was written in the range of tones extending from approximately E-flat below the staff to C above, with more frequent extensions of this range, especially in the higher tones in the upper grades.

The range of the music in grades V and VI extended from B-flat below the staff to C in the treble clef, a fourth higher than the G in the music of grade IV. A player must be trained to a degree of proficiency which approaches professional standards to perform the music requiring the use of the extremely high tones and intricate rhythms found in the music of grades V and VI. The tones above F in the upper range become progressively difficult as the player ascends the scale. The embouchure must be developed to a very high degree to play these tones with any degree of assurance.

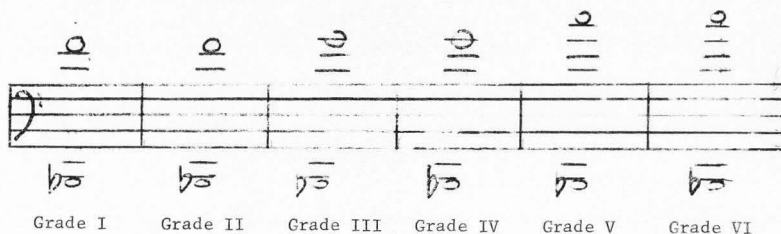


Figure 9. The range of bassoon music by grades

Embouchure

It is difficult to describe the exact position of the lips in relation to the bassoon reed in attempting to define the correct embouchure. However, some factors can be indicated which will greatly help in producing an acceptable quality in the bassoon tone.

The position of the lips in relationship to each other is one of the important factors. The upper lip should be in the position of an "overbite" in relation to the lower lip. That is, the upper lip should extend along the blade of the reed toward the first wire farther than the lower lip. This "overbite" position allows the reed to vibrate freely to produce tones in all registers of the bassoon without making extensive embouchure adjustments. It is quite common for players to place more reed in the mouth for upper tones and to move toward the tip of the reed to produce the lower tones. The overbite lip position minimizes the amount of adjustment necessary as music moves from one register to another.

The upper and lower lips must be supported lightly by the teeth by rolling the lips slightly over them. The lips should form a flattened "O" toward the center. It is important to feel the lip pressure being exerted from the sides of the lips. Biting the reed should be avoided. Biting usually occurs while the player is attempting to produce tones of the upper register and is done to compensate for a lack of breath support.

In proper playing position, the back teeth of the upper and lower jaws should be approximately one-half inch apart. This spacing may be

checked by placing the reed in playing position, removing the reed, then placing the tongue between the teeth. The player should develop the concept of "allowing" the reed to vibrate rather than forcing it to vibrate.

The muscles of the chin should fit snugly across the jaw. In some players there is a tendency for these muscles to bulge forward. This bulging condition may be corrected by observing the position of the chin muscles in a mirror, or by having someone touch the muscles, as a reminder to flatten them, while the student is playing the instrument. The flat chin gives support to the lip muscles.

Another factor in developing a proper embouchure is the angle of the face in relationship to the reed. The proper height of the bassoon may be determined by adjusting the holding strap so that the reed will touch the cleft of the chin when the head is held in an upright, straight-forward position. By tilting the head forward so that the lips come in contact with the reed, one can produce the correct playing angle. This position helps to produce the desired "overbite."

The student must become aware of the physical sensations which accompany a good tone as well as recognize the sound of it. Mursell in discussing the teaching of good vocal tone wrote:

We should make the child tone-conscious through proper motor placement. . . . The rightness of the feel of his singing, and of its sound, are two aspects of exactly the same thing. They both work together, and one checks up and sustains the other.<sup>3</sup>

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<sup>3</sup>James L. Mursell and Mabelle Glenn, The Psychology of School Music Teaching (New York: Silver Burdett Company, 1938), p. 273.

### Intonation

The bassoon is usually factory tested to tune to A-440 at a temperature of 72° F. An instrument which deviates from this basic tuning may be adjusted by use of a different bocal or changing the reed. A number 2 bocal is slightly longer than the number 1 bocal and will lower the pitch of the entire instrument. A shorter number 0 bocal may be obtained if it is necessary to raise the pitch of the instrument.

The reed can alter not only the individual notes but also the pitch of the entire instrument. A reed that is too stiff will cause an instrument to play sharp, while a reed that is too soft will generally cause an instrument to be flat in pitch. The distance the reed overlaps the bocal can also be a determining factor in the general pitch of the instrument. Generally the reed will overlap the bocal a distance of one-half inch. If the reed does not fit properly on the bocal, it may be enlarged by reaming with a special reed-making tool, or if it is too large, the wires may be tightened to make the diameter of the tube smaller.

Generally, the notes from B-flat below the staff to G on the bottom line of the staff tend to be sharp. E-flat, G-flat, and G in the staff have a tendency to be sharp along with G and A-flat above the staff. E and F in the staff have a tendency to be flat along with B-flat, D, F, and G-flat above the staff. In order to play the bassoon in tune, it will be necessary for the player to "humor" the pitch to overcome these natural tendencies.

Because the easiest band music uses most of the range of the bassoon, it is necessary for the beginning player to become acquainted

early with the intonation characteristics of his bassoon and begin to make allowances for them. Since the bassoon has a tendency to be slightly out of tune on the notes usually used to tune the band, the player should remember that usually the E-flat will be sharp, and the F and B-flat will be low in pitch. This condition leaves the A-natural as the most reliable tuning pitch.

The grade I march, "Onward America," has the fourth line<sup>4</sup> used for the first two measures of the introduction. Although this F is an easy tone to play on the bassoon, it is usually played flat unless it is brought into correct pitch by the player.

Every selection in each grade of music would have problems similar to the one mentioned above. Each one places the responsibility for correct intonation directly with the performer who must carefully analyze his tone in relation to other tones in the organization and make the necessary adjustment.

#### Breath control

Good breathing habits in playing a wind instrument are closely tied to normal breathing habits. It is the introduction of faulty muscular control which tends to undermine good tone production. When a student has the idea he must do something different, or special, to take a deep breath, it is an indication of improper breathing. Such actions as raising the shoulders, stretching the neck, or pulling in the stomach muscles do nothing to enhance good breathing. They are, in

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<sup>4</sup>Clark Gregory, "Onward America" (Westbury, Mass.: Pro-Art Publications, Inc.), 1962.

fact, detrimental. Although a person cannot see or feel what happens inside the body when he takes a deep breath, he can see and feel externally the results of deep breathing in the area of the mid-section of the body immediately above the belt line. This area should expand as a deep breath is inhaled. By placing the hands on the sides of the body in the area of the lower ribs, one can feel the expansion of the body. This expansion is also evident in the back and sides, but with the greater amount evident in the area between the breast bone and the belt line. As the breath is expelled, this area will contract.

The posture of a player while seated is of great importance in breath control. The action of the diaphragm and lower rib muscles is greatly impaired if the posture is not erect. The seated posture should be similar to that of the upper portion of the body when standing. An erect, alert body position will also help the mental attitude of a student. It is difficult to keep an alert mind when the body is not in an alert, ready-to-go position.

The throat must also be considered in connection with breath control. Usually, the person who has trouble with a constricted throat is attempting to "do something" special to help the breathing process. Since a muscle cannot push to open the throat, the problem is one of relaxation of the throat muscles. Only by relaxing can the throat be opened to allow rapid inhalation or the production of a free sounding tone.

### Tonguing

The proper tongue placement will result when the area behind and above the tip of the tongue comes in contact with the tip of the reed. The lower blade of the reed should be contacted very lightly and the reed's tip opening should be felt by the tongue. The area behind the tip of the tongue used in playing will be determined by the style of the music being played. Passages of music calling for a very legato style may be played with the area of the tongue farther back from the tip, while the most staccato passages may require the very end of the tongue to come directly in contact with the tip of the reed.

Any tonguing action should be done with a very relaxed tongue. Relaxation will help to minimize two faulty tonguing habits. First, the explosive attack becomes less explosive, and second, jaw motion is less likely to occur. The use of the tongue when accompanied by a chewing action of the jaw distorts the pitch of each tongued note and slows down the speed of the tongue action. The "explosive" attack detracts from the basic sound of a tone by placing too much emphasis on the tone beginning. It is better to develop the concept of "carefully starting" the tone with a light tongue action.

In a series of tongued notes, the breath pressure must not be relaxed until the end of a phrase. Although there may be no sound produced in the short spaces between staccato notes, the breath pressure is not relaxed but is held in a state of suspension. The embouchure must also be set and coordinated with the breath pressure during the playing of the entire phrase.

Russell A. Pizer gave the following instructions to help in the

development of playing rapidly tongued passages:

Place an imaginary rest after each note. Start with slow quarter notes and rests. The instant the first note has concluded, move the fingers rapidly to the fingering of the second note. The tone must be stopped by the tongue but the compression of the wind to pass into the instrument must not diminish during the rest. During the first rest, the fingers will be in the position of the second note. Release the tongue. The instant the second note has concluded (stopped by the tongue) move the fingers rapidly to the position of the third note. Hold the fingering position of the third note during the second rest, keeping up the compression. Release the tongue, etc. The speed should be increased gradually until the rests cannot be heard. As speed is increased, it will sound as though tongue and fingers act simultaneously.<sup>5</sup>

The investigation of band music showed that the lower grades of music used, in general, less complicated rhythms and slower moving passages. However, the problem of tonguing in connection with the playing of more rapid passages is not one entirely of tongue action, but of tongue and finger coordination. Most young players can tongue a single tone quite rapidly, but coordinating it with rapid fingering changes presents a problem which can be mastered only by building coordination through a gradual increase in speed over a span of time.

The most rapid tonguing passage in grade I music occurred at march tempo using an eighth note followed by two sixteenth notes on one count. The same pattern was repeated in grade II music. Grade III music used four notes on one count to increase the number of notes in the tonguing pattern but without increasing the tempo. "Slavonic Dances,"<sup>6</sup> a selection in grade IV, used four sixteenth notes in one count at a tempo marking of "allegro vivo" which would be an increase in tonguing speed in comparison to the music in grades I, II, and III.

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<sup>5</sup>Russell A. Pizer, Four Short Steps to Mastering Rapid Passages (Elkhart, Ind.: Selmer Bandwagon, 1965), Vol. 13, No. 3, p. 11.

<sup>6</sup>Anton Dvorak and Clair Johnson, "Slavonic Dances" (Chicago, Ill.: Rubank, Inc., 1962).



The music of grades V and VI presented no new problems which required an increase in the tonguing rate. There were, however, many tonguing problems related to intricate rhythm patterns which were more a problem of rhythm than of tonguing. Some music in the upper grades, such as "Pictures at an Exhibition,"<sup>7</sup> used repeated sixteenth notes over several counts to create a new tonguing problem--one of repetition. It is usually no problem to tongue a few notes in rapid succession, but the continued repetition of rapidly tongued notes is sometimes quite difficult. In a passage which requires rapid tongue action, muscle tenseness will often replace the relaxation which is necessary for the best control of the tongue muscles.

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<sup>7</sup>Modeste Moussorgsky, "Pictures at an Exhibition" (New York, Clark-Fischer, Inc., 1962).

## KEY SIGNATURES AND RELATED FINGERINGS

The key signatures most commonly used in all grades of music considered in this study were F, B-flat, and E-flat, containing one, two, and three flats, respectively. Key signatures using more or fewer flats than these were used much less frequently. Selections using key signatures containing sharps were almost non-existent. "Elsa's Procession to the Cathedral"<sup>1</sup> is one of the few selections containing sharps in the key signature. It has one section which used the key of E employing four sharps.

Figure 10 indicates the key signatures that were found in the various grades of music. Because music written in the rarely used keys should be performed with the same musical standards as that written in the more commonly used keys, no frequency of key usage has been indicated in the chart.

Grades	E	A	D	G	C	F	Bb	Eb	Ab	Db
I					x	x	x	x	x	
II						x	x	x	x	x
III					x	x	x	x	x	x
IV	x		x		x	x	x	x	x	x
V	x				x	x	x	x	x	x
VI					x	x	x	x	x	x

Figure 10. Key signatures

<sup>1</sup>Richard Wagner, "Elsa's Procession to the Cathedral." Arr. by Calliet (New York: Remick Music Corp., 1938).

Since the lower grades of music contained basically the same key signatures as were used in the upper grades, the problems of fingering combinations were found, to a great extent, to be common to all grades of music. The difference in the fingering problems comes not as a result of more complicated fingering patterns, but as the result of the use of more rapidly moving notes in the higher grades of music which require a higher degree of technique on the part of the performer.

Because of the key arrangement on the bassoon, there are certain note combinations which are difficult to manipulate. The fingering problems are augmented by the comparatively large diameter of the bassoon. This is especially true for the young player whose physical growth has not developed to a degree where he can handle the instrument with ease. For this reason, it is advisable to start young people on a smaller instrument, such as the clarinet, then change to the bassoon when sufficient physical development has taken place.

Since the bassoon is built in the key of C, each additional flat or sharp used either in the key signature or as an accidental, increases the difficulty of the fingerings. This fact is especially noticeable in the boot joint where the bore of the instrument bends back upon itself in one piece of wood. In effect, it is similar to having two straight-bore instruments joined together in a side-by-side position. Although the tenor and the bass joints extend from the boot joint side-by-side, the keys are seldom used in a way that causes a fingering problem.

The problem in playing the tones of the boot joint and the tones of the bass joint, so far as the mechanics of fingering is concerned, lies basically in the use of the thumb of each hand. Because of the

method of bassoon construction, the thumb of each hand is required to manipulate several keys. The young player, especially, has difficulty in attempting to reach the finger holes, to keep them covered, and at the same time to manipulate the thumb keys. Obviously, the size of the hand is a factor in determining the degree of difficulty.

The bassoon is equipped with alternate keys which make it possible to play B-flat, A-flat, and G-flat with either the thumb or the fingers of the right hand; however, certain combinations of notes require fingerings which are difficult to execute smoothly. There are some note combinations in which smooth fingering transfers may be made by alternating the use of the thumb and fingers.

One of the problem fingering combinations involving the right hand is the change from G-flat to A-flat. A smooth fingering transfer may be made by using the thumb to play G-flat and the little finger to play A-flat. A similar fingering pattern is used in playing the B-flat A-flat combination of notes. By using the thumb on the B-flat fingering and the little finger of the right hand on the A-flat, a smooth transfer may be made.

The alternate keys of the bassoon allow a choice of fingerings in the playing of B-flat, A-flat, and B-flat; however, when a note combination appears which uses the low E in combination with any one of them, a fingering problem exists which requires a rather difficult sliding action from one key to an adjacent key by the thumb or the fingers. The problem becomes more noticeable if the note combination is slurred. A tongued passage allows the sliding action to be made at the instant of tonguing and if properly articulated will be less noticeable than if

it were slurred. The addition of rollers on the keys is a desired improvement which makes the finger transfer easier.

The left-hand thumb is used to manipulate the keys on the bass joint which produces the tones from E-flat to the lowest B-flat. There are no alternate keys which may be used in the production of any of these tones. The keys are manipulated by a combination of a rolling and a flexing action of the thumb. The thumb is rolled from the D to the C key, then a flexing action brings the tip of the thumb into contact with the B and B-flat keys. The presence of rollers on these keys, as well as on the D-flat and E-flat played by the little finger of the left hand, aid in their use. The rollers are of particular value when the tones progress in a scale pattern. Larger intervals to E, F, or notes in the staff, take the fingering action from the left to the right hand.

The bassoon music investigated has many examples of fingering patterns which are difficult to perform. "Appalachian Fantasy,"<sup>2</sup> a grade I selection, has a difficult B-flat, A-flat, F combination which requires a sliding action by the little finger from A-flat to F, or by the thumb from B-flat to A-flat. Since the little finger has control of the A-flat and F keys which are adjacent to each other, it would be better to use the sliding action on them rather than the thumb which would have to move approximately two inches over two other keys to play the B-flat-A-flat combination.

Generally, the slower tempos, as well as the longer note values used in grade I music, minimize the difficulty of playing the awkward fingering combinations which occur.

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<sup>2</sup>Phillip Gordon, "Appalachian Fantasy" (New York: Witman & Sons, 1962).

"Three Mendelssohn Chorales,"<sup>3</sup> a grade II selection, has a slur from B-flat, the second line of the bass staff, down to E-flat below the staff. Regardless of which fingering is used to play the B-flat, the slur is difficult to perform smoothly. Either the thumb must slide from the B-flat to the E key, or the third finger must slide from the B-flat key to the G key. Another selection in the same grade, "Theme from Cornwall,"<sup>4</sup> has an E, F-sharp, G-sharp note combination in a slurred passage which presents the problem of sliding the thumb from the E to the F-sharp key. Although the passage uses quarter notes in a slow tempo, the fingering change from one position to the next must be made very rapidly to give a smooth flowing sound from note to note.

The bassoon part in the grade III composition, "Russian Choral and Overture,"<sup>5</sup> has a low tone passage which requires the use of the thumbs quite extensively. Written in the key of B-flat minor, it starts on B-flat, the second line of the bass staff and descends through A-flat, G-flat, F, E-flat, and D-flat to C. Although alternate fingerings could be used, the fingering pattern is most smoothly executed when the right-hand thumb is used on the B-flat and G-flat keys. In the same passage, the Eb-Db combination played with the left hand requires the sliding of the thumb and little finger on keys adjacent to each other. Since there are no alternate keys for these notes, sliding from key to key is the only way the note combination may be played.

There are several passages in grade II music which use the notes

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<sup>3</sup>Phillip Gordon (arr.), "Three Mendelssohn Chorales" (New York: Bourne Co., 1960).

<sup>4</sup>John Cacavas, "Theme from Cornwall" (New York: Mills Music, Inc., 1959).

<sup>5</sup>P. Tschaikowsky "Russian Choral and Overture" (arr. M. Issaac) (New York: Carl Fischer, 1937).

immediately above the staff in repetition. The notes in this range of the bassoon do not respond readily, especially if they are in a slur which approaches them from a lower tone. The response can be helped mechanically by use of the high A and B keys on the tenor joint. When they are used to help in the response of these notes they are referred to as "flick keys." The flick keys are not to be held in an open position to aid in response but are opened momentarily at the beginning of the tone and closed immediately after the tone has begun. The A key is used to help produce A on the top line of the staff, and the B key is used on the notes above A up to and including D. The G and G-sharp at the top of the staff do not require the use of flick keys because the proper fingering leaves the top finger hole half open to act as an octave key in breaking the air column.

"Scenes from the Sierras,"<sup>6</sup> a grade IV composition, uses the low E-F-sharp note combination many times in rapid succession. The music is written in eighth notes in a tempo marking an allegro vivo, and the fact that it is a slurred passage makes it more difficult to perform smoothly. The problem is centered in sliding the thumb from the E key to the adjacent F-sharp key. Attempting to use the alternate F-sharp key is more difficult because the little finger of the right hand would have to be raised from the F key over the protruding F-sharp key.

Frank Erickson, in his composition "Toccata for Band,"<sup>7</sup> used the notes beginning on the second line of the bass staff, B-flat, G-flat, A-flat, F-flat, and D-flat, in a passage beginning in measure fifty-two.

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<sup>6</sup>David Bennett, "Scenes from the Sierras" (New York: Carl Fischer, 1939).

<sup>7</sup>Frank Erickson, "Toccata for Band" (New York: Bourne Co., 1951).

Other notes leading into this sequence make it necessary to play the A-flat and F-flat keys with the thumb, skipping over the G-flat key which lies between them.

"American Folk Rhapsody"<sup>8</sup> contains a low Eb-Bb note combination which is common to many other compositions. This combination is difficult because it requires either the third finger of the right hand or the thumb to move on adjacent keys.

Other examples of fingering problems could be cited, but they would be repetitious in that they are the same problems already mentioned, appearing in a new setting. The increase in difficulty seems to be in the use of faster moving note and rhythm patterns rather than in the fingering changes which are determined by the mechanical features of the bassoon. That is, a note combination appearing in a grade V composition is likely to be more difficult to perform than one in a lower grade composition because there is a greater possibility that the notes will be moving faster, thus requiring a greater technique than to play the same note combination in a slower moving grade I composition.

The music of grades V and VI contains problems extending through the entire range of the instrument. Besides the problems mentioned in the music of the lower grades, the music of these grades goes into the extreme upper register of the bassoon where the "cross-fingerings" complicate the work of the performer. Other factors, especially those dealing with the embouchure and reed, make it necessary that the player develop performance standards which approach those of the professional bassoonist.

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<sup>8</sup>Clare Grundman, "American Folk Rhapsody" (New York: Boosey & Hawkes, 1948).



## INTERPRETIVE ASPECTS

Terms and symbols

The investigation of the bassoon parts of grade I band music showed the use of the following musical terms: allegro, allegretto, andante, a tempo, crescendo, diminuendo, da capo, fine, maestoso, marcato, moderato, non, poco, presto, rallentando, ritard, sempre, staccato, trio, troppo, and tutti. Very often the terms were used in abbreviated form.

Symbols, or signs, were used to indicate the use of the following: accent, alla breve, bar, break, crescendo, diminuendo, double bar, flat, forte, fortissimo, fermata, metronome marking, mezzo forte, mezzo piano, natural pianissimo, piano, section repeat, one measure repeat, sharp, slur, staccato, tie, time signatures, key signatures, and trill. Notation included the whole note, dotted half note, half note, dotted quarter note, quarter note, dotted eighth note, eighth note, sixteenth note, and thirty-second note.

Grade II music contained the following terms which were not found in grade I music: adagio, allargando, animato, con moto, energico, giocoso, largo, meno mosso, mesto, minuet, and variation. The symbols used were forte-piano, sforzando, and sostenuto.

The music in grade III contained the following terms which were not found in the music of grades I or II: accelerando, anantino, dolce, gavotte, grandioso, lento, larghetto, lunga, molto, piu, sarabande, ritenuto, rhythmic, soli, valse, vivace, and vivo. Symbols were used

to indicate triplet and mezzo staccato.

The music in grade IV contained the following terms which were not found in the music of grades I, II, or III: brillante, moto, presto, simile, scherzando, and subito. A symbol was used to indicate the use of sforzando-piano (sfp).

In the music of grades V and VI, three terms were found that were not used in the music of lower grades; they were cantabile, stringendo, and feroce.

The large list of terms found in grade I music indicates that the beginning student must have a fairly substantial knowledge of music terminology in order to properly interpret the easiest band music. This fact is substantiated by the progressively smaller list of new terms that was found in each succeeding grade of music. A person may logically expect that, as the progression was made from one grade of music to a more difficult one, the list of music terms used would substantially increase. However, the investigation showed that fewer new terms were used in each succeeding grade of music.

In applying this information in the teaching process, teachers must arrange to give the beginning students a broad foundation in their understanding of terms related to music interpretation. As in other factors of performance, the requirements for the performance of the easiest music envelop a large segment of the entire field of terminology commonly used in band music.

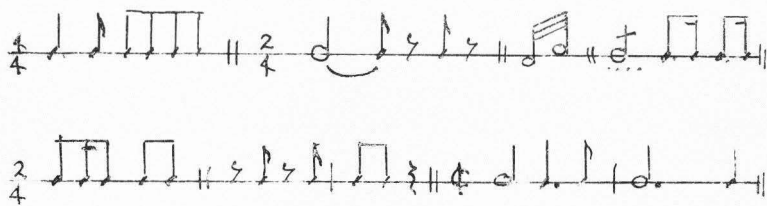
#### Rhythm patterns

In the investigation of music to find the most difficult rhythm patterns in each grade, it was found that there were many patterns common

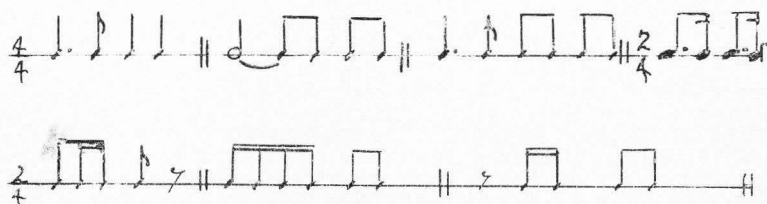
to all grades of music. Dotted notes, syncopation, and after-beats were found in the slower moving tempos of grade I just as they were in the more rapidly moving tempos of the higher grades of music. Two factors were present which made the rhythms of the upper grades of music more difficult than the lower grades. First, the complicated rhythms of the upper grades were often repeated many times in succession, while similar rhythms which appeared in the music of the lower grades were used singly or with very few repetitions. Second, the upper grades employed more rapidly moving tempos than the lower grades so that a performer would be required to play more notes in a given length of time. Since there were so many factors common to all grades of music, it is the factor of tempo which appears to be the most important aspect in determining the degree of difficulty in the performance of music.

The following notated rhythms are representative of the most difficult patterns found in the first four grades of bassoon music. If the pitch and tempo factors are removed, the similarity of the rhythms becomes very evident.

## Grade I



## Grade II



## Grade III

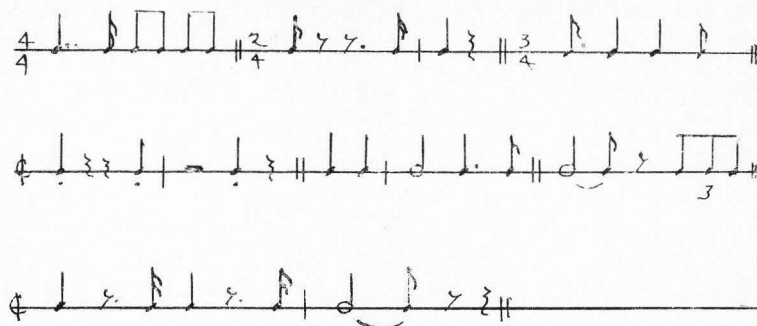


Figure 11. Notated rhythms

## Grade IV

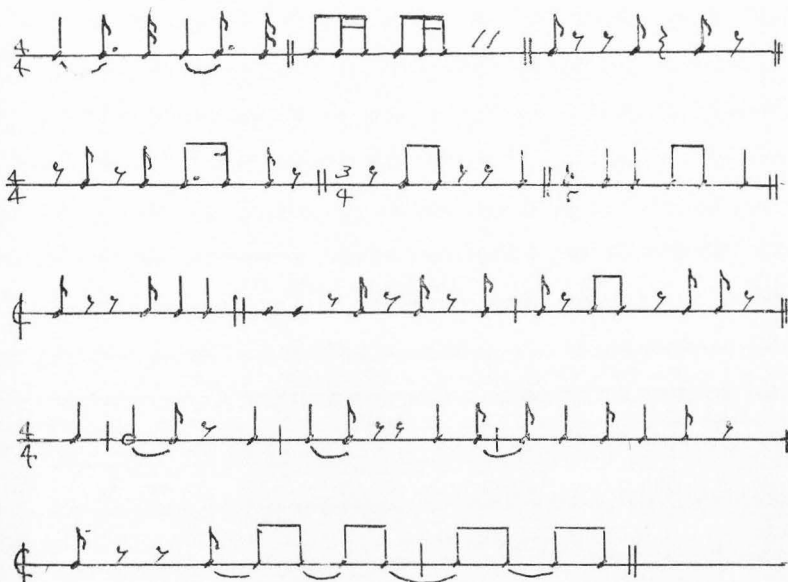


Figure 11. Notated rhythms (cont'd.)

## SUMMARY

In terms of numbers, the bassoon does not have the popularity it once had in musical organization, but because of its characteristic tone color, its place in the modern bands and orchestras is quite stable. Old and new orchestrations include colorful solo passages and interesting accompaniments to be played by the bassoon displaying its moods with its somber melody or its role as the "musical clown."

The research of band literature for the bassoon indicated the presence of a common factor, in varying degrees, in each area of investigation. Regardless of which area of bassoon performance might be considered, it was found that the grade I music contained rhythm patterns, problems in mechanics of fingering, tonal range, key signatures, symbols and terms of interpretation, etc., that were similar, and sometimes identical to the problems in the same areas of performance in the most difficult band music. Most of the performance skill which is required to play band music of the upper grades is necessary to correctly perform the easiest music. The most important factor which accounted for the higher degree of difficulty in the upper grades of music was the more rapid tempo which demands greater technical facility.

In view of this finding, the value of having young players learn correct habits and concepts upon which they may base their musical careers, cannot be over-emphasized. In correctly solving the problems of performance found in the easiest band music, the students are building habits which, it is hoped, will help them master similar problems in the rapid tempos of more difficult music.

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